

In the Claims

Claims 7-12 were previously cancelled.

New claims 22-27 are entered herein.

Claims 1, 5, 13-14 and 16 have been amended herein. Underlines indicate insertions; ~~strikethroughs~~ or double brackets [[]] indicate deletions.

1. (Currently amended) A method for delivering web-supported articles between dies and punches of a trim press, comprising:

providing a web conveyor, the web conveyor having a canopy with a servo helper assembly and a treadle, the treadle having an article detector and a servo pick assembly, the servo helper assembly and the servo pick assembly each having at least one drive wheel and a sensor for detecting relative feed distance imparted by the at least one drive wheel;

while moving the web and the articles, guiding the web and the articles along the web and between a pair of the articles each provided in one of a pair of adjacent rows that extend along a travel path direction;

detecting a relative difference in feed distance imparted by the at least one drive wheel of the servo helper assembly and the servo pick assembly;

synchronizing operating speed of the servo helper assembly relative to the servo pick assembly responsive to the detected relative difference in feed distance;

detecting location of an article in the web using the article detector; and

in response to detecting the location of the article, controllably moving the web to position the article between a corresponding punch and die of the trim press.

2. (Original) The method of claim 1, wherein the step of detecting location comprises optically detecting movement of an article relative to the article detector.

3. (Original) The method of claim 1, wherein the step of detecting location of an article comprises optically detecting a protuberance in the web.

4. (Original) The method of claim 3, wherein the protuberance is an article embedded in a web.

5. (Currently amended) A method for delivering a web of material having articles formed therein between a die and punch of a trim press, the method comprising:

~~guiding the web between the die and the punch, the die and the punch being provided in a travel path of the web;~~

providing a web conveyor having a canopy with a servo helper assembly, a guide member, a proximity detector, and a treadle, the proximity detector configured to detected distance of the web from the guide member indicative of the presence of excess web between the servo pick assembly and the servo helper assembly, the treadle having an article detector and a servo pick assembly, the servo helper assembly and the servo pick assembly each having at least one drive wheel and a sensor for detecting feed distance imparted by the at least one drive wheel, with the treadle being configured to move relative to the die and the punch;

detecting relative feed distance imparted by the at least one drive wheel of the servo helper assembly and the servo pick assembly;

detecting distance between the web and the guide member to determine presence of excess web between the servo pick assembly and the servo helper assembly;
and

adjusting operating speed of the servo helper assembly relative to the servo pick assembly responsive to the detected distance between the web and the guide member to reduce the presence of excess web between the servo pick assembly and the servo helper assembly.

~~detecting a location of an article in the web using the article detector; and~~
~~controllably moving the web, in response to the detecting, to position the article between the punch and the die to perform severing and trimming of the article.~~

6. (Original) The method of claim 5, wherein the treadle is further configured to convey the web having the articles between the die and the punch.

7-12. (Cancelled)

13. (Currently amended) The method of claim ~~[[5]]~~ 26, wherein the detecting comprises optically detecting movement of an article relative to the article detector.

14. (Currently amended) The method of claim ~~[[5]]~~ 26, wherein the detecting comprises optically detecting a protuberance in the web.

15. (Original) The method of claim 14, wherein the protuberance is an article embedded in a web.

16. (Currently amended) A method for delivering a web of material having articles formed therein between a die and punch of a trim press, the method comprising:

providing a web conveyor having a canopy with a servo helper assembly and a treadle for positioning the web and articles between the die and punch for severing, the treadle having an article detector and a servo pick assembly, the servo helper assembly and the servo pick assembly each having at least one drive wheel and a sensor for detecting feed distance imparted by the at least one drive wheel;

guiding the web between the die and the punch;

~~providing and configuring a treadle to move relative to the die and the punch;~~

detecting ~~[[a]] delivery status of an article in the web and articles relative to one of the servo help assembly, the servo pick assembly, and the treadle; and~~

detecting a difference in delivery status of the web and articles by the servo helper assembly relative to the servo pick assembly;

in response to detecting a difference in delivery status, briefly disengaging the at least one drive wheel from the web to enable one or more of: a) realignment of the web and b) adjustment and spacing of the web between the servo pick assembly and the servo helper assembly; and

controllably moving the web, in response to the detecting, to position the article between the punch and the die to perform severing and trimming of the article.

17. (Original) The method of claim 16, further comprising providing the die and the punch in a travel path of the web.

18. (Original) The method of claim 16, wherein the providing comprises providing the treadle having an article detector, and the detecting step comprises detecting a location of the article using the article detector.

19. (Original) The method of claim 18, wherein controllably moving the web comprises synchronizing movement of the web to produce an increased throughput rate of the web conveyed between the die and the punch of the trim press.

20. (Original) The method of claim 19, wherein movement of the web is controllably regulated by a control system in response to a signal detected by the article detector.

21. (Original) The method of claim 20, wherein the control system is configured to move a follower wheel away from a drive wheel for a predetermined amount of time, while the trim press is in an open state and not performing a trimming operation, to enable realignment of the web, and the follower wheel and the drive wheel are configured in a closed state to support movement of the web.

22. (New) The method of claim 1, wherein the canopy is a self-feeding canopy.

23. (New) The method of claim 1, wherein the treadle is carried for movement relative to the web conveyor.

24. (New) The method of claim 5, wherein the treadle is carried for movement relative to the web conveyor.

25. (New) The method of claim 5, further comprising detecting a relative difference in feed distance imparted by the at least one drive wheel of the servo helper assembly and the servo pick assembly.

26. (New) The method of claim 5, further comprising detecting a location of an article in the web using the article detector.

27. (New) The method of claim 26, further comprising controllably moving the web, in response to detecting, to position the article between the punch and the die to perform severing and trimming of the article.